NISSAN

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NISSAN LEAF™

Nissan LEAF
Clean Cities Workshop

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Boston, Massachusetts

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- Zero Emission Leadership
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- Car Sharing

Zero Emission Leadership Commitment

Nissan LEAF

Electric Light Duty Van (concept)

Infiniti LE

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Nissan's Lithium-ion Battery Plant

SUSTANABLE MOBILITY PLANT

Smyrna, Tennessee

Facility:	1.3 million square feet for battery operation
Property:	67 acres for battery operation
Production start:	Late 2012 for battery and Nissan LEAF
Component:	Lithium-ion battery
Model Produced:	Nissan LEAF
Capacity:	200,000 batteries annually 150,000 Nissan LEAFs annually
Investment:	$1.7 billion for Nissan LEAF assembly construction and retooling
Employees:	Up to 1,300 employees at maximum capacity for both battery and Nissan LEAF vehicle production

Nissan LEAF – Product Highlights

Size	5-door mid size hatchback
Capacity	5 Adults
Range	100 miles (US LA4)
Top Speed	90 mph
Battery	Laminated Li-ion
Capacity/Power	24 kWh/over 90kW
Motor	High-response synchronous AC Motor (80kW/280Nm)
IT System	Integrated communication system

- Zero emission
- 100-mile range
- Superior battery technology
- Built for sustainable mobility
- Stimulating acceleration
- Quietness
- Cold Weather Package
- Connected intelligent transportation (IT) system
- Affordable

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Cold Weather Comfort

Driver comfort through efficient design:

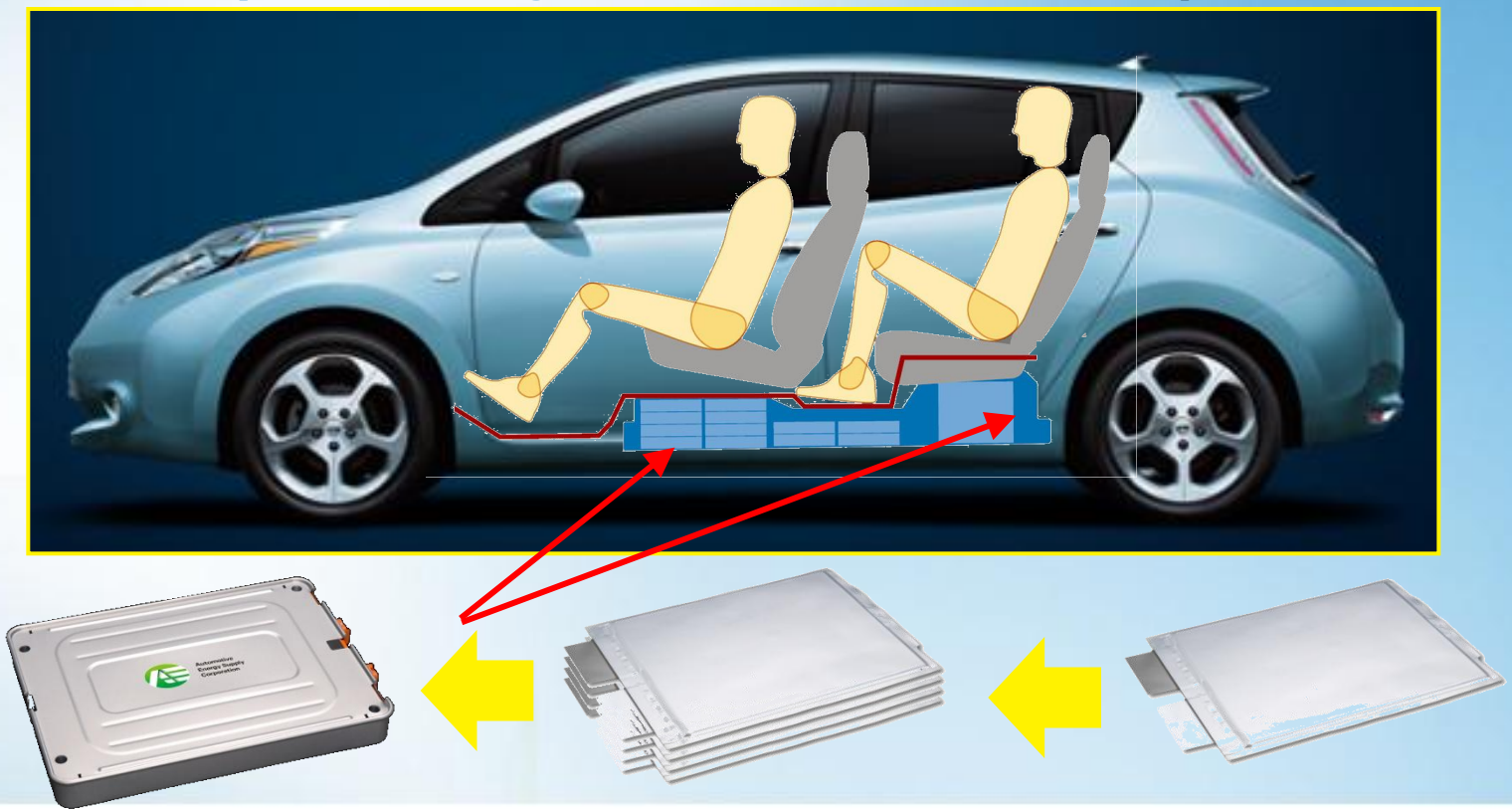
Remotely pre-heated or cooled while still plugged in!

Standard cold weather content:

- Heated Seats
- Heated Steering Wheel
- Rear HVAC Duct
- Battery Blanket
- Heated Outside Mirrors

Superior Battery Technology

- Places batteries in the safest location
- Provides optimum weight distribution for ideal/predictable handling
- Allows for 5 passenger seating by not intruding into cabin space
- Dynamic temperature regulation for cold weather performance



Customer Key Driving Data & Usage

Nearly all Nissan LEAF owners drive less than 50 miles a day – the average is more around 30 miles a day

- Average charging time is less than 3 hours
- The average drive trip is about 7 miles
- People are using the vehicle as their primary car

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Workplace Charging

Why Workplace Charging?

- Americans spend the most amount of time outside the home at work.
- The workplace has been identified as the most convenient place for EV drivers to charge.
- When asked what would influence their decision to drive an EV, survey respondents told us if they had workplace charging the would adopt the technology.
- "Workplace charging provides extra peace of mind in knowing that I have the infrastructure to make this decision work for me."

  - J. Nelson, LEAF Owner Testimonial

Workplace Charging Initiative

- **Nissan is working with large corporate stakeholders to develop employee workplace charging programs for the LEAF**

- Sharing Best Practices
- Employee Ride-N-Drive Events
- Highlighting Current LEAF Incentives
- Connecting Infrastructure Partners
- Educational Town Hall w/ Expert EV Panels
- Developing Other Interests, e.g. Smart Charging

Workplace Charging Best Practices

EVSE	Description	Power Demand	Cost	Smart Charging Potential
L1 Only	Standard NEMA 5-15 Outlet OR Hardwired EVSE	1.4 kW each EV	Low Low-Med	Medium – limited load with small EV volume Med DR Potential
L2 Only	All L2 should be 40A compliant – NEC requires dedicated circuit for each EVSE	3.8 kW each EV	Medium-High	High DR Potential High Load Shape ~2-4 hour duration
QC + L1	Japanese model Viable option for Workplace introductory program.	QC = 44-50kW 1.4 kW L1 EVSE	Medium Capital Costs Low Operational Cost Potential	Economically scalable with low tech functionality High DR Potential 8+ hour active charging load shape - High
QC + L2	High volume vehicle option. High potential showcase configuration for grid integration.	QC = 44-50kW 3.8-7.2 kW L2 EVSE	Medium Capital Costs Medium-High Operational Costs	High DR Potential High Load Shape with large EV Volume

Special Nissan LEAF Promotion (BOSTON)

2012 Nissan LEAF Lease	What You Can Save
SV Payment: $219/month SL Payment: $237/month	Monthly Savings: $197/month
Term: 36 months, 12,000 miles/year	Assumption: Drive 45 miles/day, in a vehicle that gets 20 mpg
Taxes, registration, and tags additional (approximately $2,000) payable at signing or factored into lease term	Calculate your own savings by clicking here

Purchase incentives also available!

To learn more visit www.insidenissan.com

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Public & Private Fleets

Why Nissan LEAF for your public agency?

- "Not only are we being **sensitive to the bottom line**, but we are being **sensitive to the environment**"

  - Melissa Stephens, Assistant City Manager, Cedar Hill, Texas

- "**We're walking the walk**, not just talking the talk. We're saying be green, and **we're doing it**."

  -Corky Brown, Communications Director, Cedar Hill, Texas

- "We want to continue contributing to the **reduction in pollution** in large urban centers and the introduction of the 100% electric Nissan LEAF sets a **new benchmark** for our fleet"

  - Paul Gomes Valente, National Director of PSP (Portugal Police)

Nissan LEAF makes sense for your agency

- **Low lifecycle ownership costs address fiscal austerity and budget constraints**
  - Lower maintenance costs
  - Cheaper fuel and less fuel price volatility
- **100% Electric supports your sustainability objectives**
  - Zero tailpipe emissions lowers your carbon footprint
- **Nissan LEAF already meets public agency needs!**

Portugal Police Safe School Program

City of Cedar Hill, Texas – General Use

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What is the Municipal Lease Purchase?

- **Why Lease?**

  Public agencies do not have tax liability, and therefore cannot take advantage of the federal **$7500 tax credit** through a purchase, so they must lease -- Nissan Motor Acceptance Corp (NMAC) passes through the tax credit savings to the agency

- **Why a Municipal Lease?**

  Most public agencies cannot legally execute a traditional lease, so Nissan developed a special lease-to-own product: the **Municipal Lease**

Municipal Lease Eligibility & Benefits

- **Who is Eligible?** ***Any public agency EXCEPT federal government agencies:***
  - States, counties, cities, villages
  - School districts, water districts, other special districts
  - Community colleges, public universities
  - Many more!

- **What are the Benefits?**
  - Agency **owns a Nissan LEAF** at the end of the lease
  - Lower cost by being able to take advantage of $7500 federal tax credit
  - No mileage limitations, mileage charges, or security deposit
  - Fixed annual payments meets public budgeting needs
  - Spreads cost over a maximum 24, 36, 48 or 60 month term, minimizing budget strain and freeing capital to acquire more Nissan LEAFs

What do you need to consider?

- **Is the Nissan LEAF the right vehicle for the purpose?**
  - Nissan LEAF's range is sufficient for most public agency needs:
    - EPA City Cycle range: 100 miles
    - EPA Combined Cycle range: 73 miles
- **How much are you saving?**
  - Lifecycle cost analysis should take into account the following variables over the vehicle's useful life:
    - *Subsidized cost of a new Nissan LEAF*
    - *Lower maintenance costs*
    - *Lower fuel costs (99 MPGe)*
- **How many chargers will I need and what type?**
  - Several options are available, depending on how you plan to operate your Nissan LEAFs and who will access the chargers
  - Level 1 (110 VAC), Level 2 (220 VAC), and DC Fast Charging options are most common

Nissan LEAF Adoption Incentives

- **Federal Tax Credit Incentive = $7,500**
- **Flexible Financial Products for State & Local Governments**
- **Low Lease Options Available NOW**
  - **Low Monthly Payments**
  - **36 months**
  - **See your local Nissan LEAF dealer for details**

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Private Fleet – Lease or Purchase

- **Volume discounts**
- **Take full advantage of tax incentives**

Source: thelmagazine.com

Infrastructure for Fleets

Perspective

- Build infrastructure to meet your specific fleet needs
- Engage community infrastructure discussion to leverage opportunities
- Level 2 charging for home base
  + Destination locations
- DCFC for larger fleet needs
  + Public Charging
- Leverage:
  - car sharing
  - public infrastructure

Nissan DC Quick Chargers

- **Nissan, Sumitomo, partner to provide low-cost DC quick chargers to North America**
- **Price: 25%-33% less than commercially-available models**
- **~50 miles in 15 minutes**
- Available for order via website: **nissanqc.com**

80% charge in < 30 minutes (from zero SOC)

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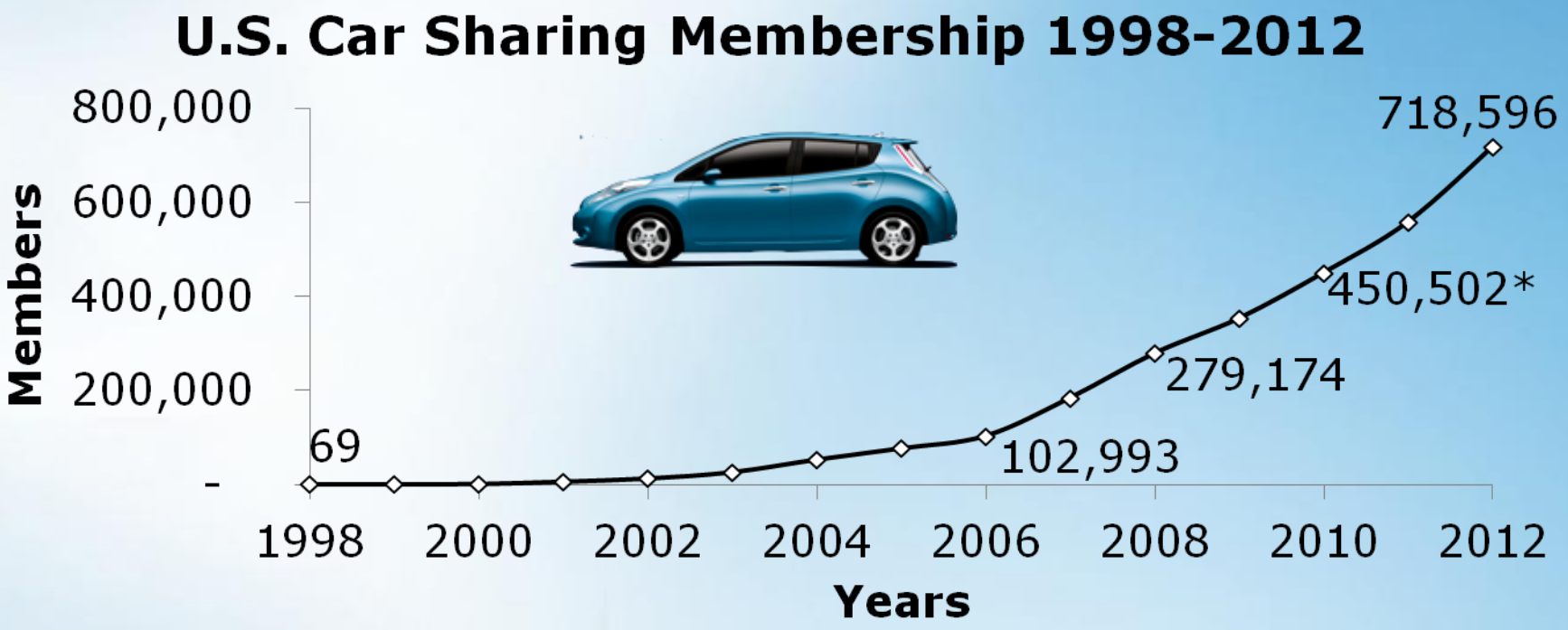
Car Sharing

Sustainable Mobility = Car Sharing+Nissan LEAF

- The 100% electric Nissan LEAF is the ideal car for urban and regional car sharing needs
- Car sharing will have an estimated 1 million users in the U.S. by 2014
- Average annual car sharing membership growth has been 32% since 2007



** 2009-2011 membership interpolated using best –fit polynomial growth trend (David Peterson, Nissan)*
Source: *Shaheen, Cohen, and Chung (2010); 2012 data obtained via corespondence with Susan Shaheen (U.C. Berkeley)*

Nissan LEAF Car Sharing Examples

Enterprise WeCar

Zipcar FastFleet - Houston

City CarShare – San Francisco Bay Area

AutoShare - Toronto

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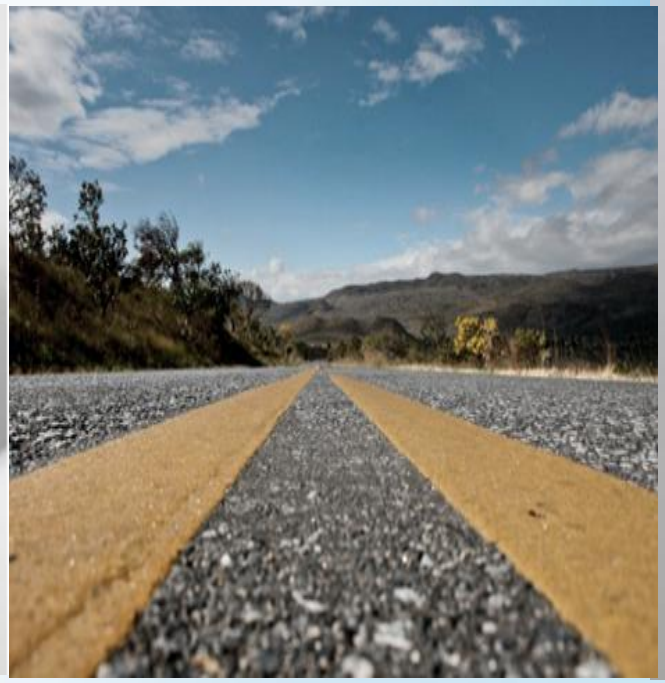
THANK YOU!



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Appendix

Infrastructure

Infrastructure Options

EVSE	Charge Type	Usage	Charge Power	Time to charge
Level I	Trickle	Opportunity	1.4 kW	~20 hrs
Level II	Normal	Home/Public	3.3kW	7 hours
DC Fast Charge	Quick	Public/Private	50 kW	30 minutes (to 80%)

From ZERO State of Charge

Infrastructure Basics

- Standard Connector for Level 2 charging
- Most charging happens at home / home base
- Most charging happens overnight
- Average charging time is under 3 hours / L2
- Average time “plugged in” far exceeds active charging time
- Drivers average about 3 trips between charging

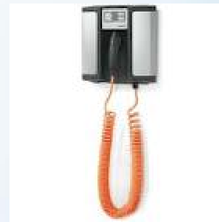
Infrastructure Power Requirements

Type	Power Supply		Charger Power	Charging Level	Charger Location	Charging Time (24kwh Battery)
Trickle	120VAC Single Phase	12A	1.4kW	Level 1	On-board	18h
Normal	240VAC Single Phase	15A	3.3kW	Level 2		8h
		30A	6.6kW			4h
Fast	480VAC 3-phase		50kW	Quick Charge	Off-board	30min

Infrastructure for Fleets - Level 2

GE **Schneider** **Leviton** **Legrand** **Eaton** **AV** **ECOtality**





Clipper Creek **SPX** **Charge Point**


EVSE goes mainstream!

- **Retailers:**
  - **Lowes**
  - **Best Buy**
  - **Home Depot**
  - **Amazon**

GE **Schneider** **Leviton** **Legrand**